
RECENT MICROSCOPIC CALCULATIONS APPLIED TO NUCLEAR FISSION : FISSION BARRIERS AND FISSION FRAGMENT DISTRIBUTIONS

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Among the different theoretical approaches able to describe the fission process, microscopic ab initio ones have the advantage of being capable of making reliable predictions even in nuclei where few or no data is known. The main interest of this kind of approach is to describe both statical and dynamical aspects of fission as well as the internal and collective properties of the fissioning system in a consistent manner. Due to the complexity of the formalism and comparatively large computational times, extensive sets of results suitable for large scale data evaluations will not be available till a few years. Nevertheless, as I will show, a lot of progress has been made recently in order to derive fragment properties taking into account the full dynamics of the fission process in a consistent microscopic time-dependent approach, and very promising results have been obtained.

In this talk, I will present an overview of recent microscopic approaches to nuclear fission including a review of the major developments in the field. Recent results about fission barriers and fragment mass, charge and kinetic energy distributions in low-energy actinide fission will be shown and discussed.